

10/536467

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
17 June 2004 (17.06.2004)

PCT

(10) International Publication Number
WO 2004/050732 A3

- (51) International Patent Classification⁷: **C08H 5/04**, 1/00, C08L 89/00
- (21) International Application Number: PCT/IL2003/001010
- (22) International Filing Date: 27 November 2003 (27.11.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/429,550 29 November 2002 (29.11.2002) US
- (71) Applicant (for all designated States except US): YISSUM RESEARCH DEVELOPMENT COMPANY OF THE HEBREW UNIVERSITY OF JERUSALEM [IL/IL]; Hi Tech Park, The Edmond J. Safra Campus, The Hebrew University of Jerusalem, Givat Ram, P. O. Box 39135, 91 390 Jerusalem (IL).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): BRAUN, Sergei [IL/IL]; 364 HaShaked Street, 99 875 Zur Hadassa (IL).
- (74) Agent: G. E. EHRLICH (1995) LTD.; 11 Menachem Begin Street, 52 521 Ramat Gan (IL).
- (81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
- with international search report
 - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 5 August 2004
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: PROCESS FOR PREPARATION OF BIODEGRADABLE POLYMERS AND RESINS FROM PROTEINS, AND PLASTICS OBTAINED THEREBY

(57) Abstract: A method for preparing polyester/polyamide polymers, resins and plastics from proteins is disclosed. Using nitrous acid or nitrous oxide, a protein is converted to a hydroxyl carboxyl polyamide protomer. Protomers are condensed through hydroxyl and carboxyl groups to make inter-protomer ester bonds, resulting in a polyester polyamide polymer, resin or plastic.

WO 2004/050732 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL03/01010

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C08H 5/04; C08H 1/00; C08L 89/00

US CL : 527/200, 207, 600, 604; 524/783, 784, 780; 525/54.1, 54.45, 437, 444, 450, 509, 535, 540; 530/203,

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 527/200, 207, 600, 604; 524/783, 784, 780; 525/54.1, 54.45, 437, 444, 450, 509, 535, 540; 530/203,

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,397,834 A (JANE et al) 14 MARCH 1995 (14.03.1995), columns 1-14	1-113
A	US 5,523,293 A (JANE et al) 04 JUNE 1996 (04.06.1996), columns 1-19	1-113
A	US 5,710,190 A (JANE et al) 20 JANUARY 1998 (20.01.1998), columns 1-16	1-113

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

08 June 2004 (08.06.2004)

Date of mailing of the international search report

23 JUN 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

SAMUEL A. ACQUAH

Telephone No. 571-272-1700